

Please amend page 28, line 1 as follows:

**Claims What is claimed is:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1-12 (Cancel)

13. (New) An optical imaging contrast agent with affinity for an abnormally expressed biological target associated with endometrioses, of formula I



wherein V is one or more vector moieties having affinity for an abnormally expressed target in endometriosis, L is a linker moiety or a bond and R is one or more reporter moieties detectable in in vivo optical imaging, and wherein the contrast agent has a molecular weight below 10000 Daltons.

14. (New) A contrast agent as claimed in claim 13 comprising a contrast agent substrate, wherein the target is an abnormally expressed enzyme, such that the contrast agent changes pharmacodynamic properties and/or pharmacokinetic properties upon a chemical modification from a contrast agent substrate to a contrast agent product upon a specific enzymatic transformation.

15. (New) A contrast agent as claimed in claim 14 wherein the contrast agent changes binding properties to specific tissue, membrane penetration properties, protein binding or solubility properties upon the chemical modification.

16. (New) A contrast agent as claimed in claim 13 having affinity for any of the targets selected from the group of angiogenesis targets, adhesion molecules, estrogen receptors,

progesterone receptors, Cathepsin H and Cathepsin S, aromatase, reductase, CD10, endoglin, haptoglobin and cyclin D2.

17. (New) A contrast agent as claimed in claim 13 wherein V is selected from peptides, peptoid moieties, oligonucleotides, oligosaccharides and lipid-related compounds and traditional organic drug-like small molecules.

18. (New) A contrast agent as claimed in claim 13 wherein R is a dye that interacts with light in the wavelength region from the ultraviolet to the infrared part of the electromagnetic spectrum.

19. (New) A contrast agent as claimed in claim 13 wherein R is a cyanine dye.

20. (New) A pharmaceutical composition for optical imaging for diagnosis of endometriosis, for follow up of progress of endometriosis, or for follow up of treatment of endometriosis, comprising a contrast agent as defined in claim 13 together with at least one pharmaceutically acceptable carrier or excipient.

21 (New) A method of generating an optical image of an animate subject involving administering a contrast agent to said subject and generating an optical image of at least a part of said subject to which said contrast agent has distributed, characterized in a contrast agent as defined in claim 13 is used.

22. (New) A method of generating an optical image of an animate subject involving administering a contrast agent to said subject and generating an optical image of at least a part of said subject to which said contrast agent has distributed for a diagnosis of endometriosis, wherein the follow up of the progress of endometriosis development or the follow up treatment of endometriosis is obtained by using a contrast agent as defined in claim 13.